

INTERNATIONAL SEARCH REPORT

International Application No  
PCT/GB 03/04639

A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 C07K14/705 C07K16/28 C12N15/62 C12N5/10 A61K38/17

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 C07K C12N

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, BIOSIS, MEDLINE

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	WO 97 23613 A (BEBBINGTON CHRISTOPHER ROBERT ;CELLTECH THERAPEUTICS LTD (GB); FIN) 3 July 1997 (1997-07-03) cited in the application the whole document	1-34
Y	FINNEY H M ET AL: "CHIMERIC RECEPTORS PROVIDING BOTH PRIMARY AND COSTIMULATORY SIGNALING IN T CELLS FROM A SINGLE GENE PRODUCT" JOURNAL OF IMMUNOLOGY, THE WILLIAMS AND WILKINS CO. BALTIMORE, US, vol. 161, no. 6, 15 September 1998 (1998-09-15), pages 2791-2797, XP000828225 ISSN: 0022-1767 cited in the application the whole document	1-34
-/-		

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

\* Special categories of cited documents:

- \*A\* document defining the general state of the art which is not considered to be of particular relevance
- \*E\* earlier document but published on or after the international filing date
- \*L\* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- \*O\* document referring to an oral disclosure, use, exhibition or other means
- \*P\* document published prior to the international filing date but later than the priority date claimed

- \*T\* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- \*X\* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- \*Y\* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- \*A\* document member of the same patent family

Date of the actual completion of the international search

10 February 2004

Date of mailing of the international search report

24/02/2004

Name and mailing address of the ISA

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PCT/GB 03/04639

## C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	WO 02 33101 A (CELLTECH R & D LTD ;FINNEY HELENE MARGARET (GB); LAWSON ALASTAIR D) 25 April 2002 (2002-04-25) the whole document	1-34
Y	ABKEN HINRICH ET AL: "Tuning tumor-specific T-cell activation: a matter of costimulation?" TRENDS IN IMMUNOLOGY. ENGLAND, vol. 23, no. 5, May 2002 (2002-05), pages 240-245, XP002269748 ISSN: 1471-4906 the whole document	1-34
A	CHAMBERS C A: "The expanding world of co-stimulation: the two-signal model revisited" TRENDS IN IMMUNOLOGY, ELSEVIER, CAMBRIDGE, GB, vol. 22, no. 4, 1 April 2001 (2001-04-01), pages 217-223, XP004255908 ISSN: 1471-4906 the whole document	1-34
A	SHUFORD W W ET AL: "4- 1BB costimulatory signals preferentially induce CD8+ T cell proliferation and lead to the amplification in vivo of cytotoxic T cell responses" JOURNAL OF EXPERIMENTAL MEDICINE, TOKYO, JP, vol. 186, no. 1, 7 July 1997 (1997-07-07), pages 47-55, XP002110608 ISSN: 0022-1007 the whole document	1-34
A	ROGERS P R ET AL: "OX40 promotes Bcl-xL and Bcl-2 expression and is essential for long-term survival of CD4 T cells." IMMUNITY. US, vol. 15, no. 3, September 2001 (2001-09), pages 445-455, XP002269749 ISSN: 1074-7613 the whole document	1-34
	-/-	

# INTERNATIONAL SEARCH REPORT

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## C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
P,A	<p>PARRY RICHARD V ET AL: "CD28 and inducible costimulatory protein Src homology 2 binding domains show distinct regulation of phosphatidylinositol 3-kinase, Bcl-xL, and IL-2 expression in primary human CD4 T lymphocytes."  JOURNAL OF IMMUNOLOGY (BALTIMORE, MD, US),  vol. 171, no. 1, 1 July 2003 (2003-07-01),  pages 166-174, XP002269750  ISSN: 0022-1767  the whole document</p>	1-34

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## Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:  
because they relate to subject matter not required to be searched by this Authority, namely:
2. ☐ Claims Nos.:  
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:
3. ☐ Claims Nos.:  
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

## Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this International application, as follows:

see additional sheet

1. ☐ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
2. ☒ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☐ No protest accompanied the payment of additional search fees.

**FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210**

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

**1. Claims: 1-18, 23-34 all partially**

Polynucleotides encoding a cytoplasmic signalling molecule comprising at least two cytoplasmic signalling sequences wherein one such sequence is derived from CD134

**2. Claims: 1-18, 23-34 all partially**

Polynucleotides encoding a cytoplasmic signalling molecule comprising at least two cytoplasmic signalling sequences wherein one such sequence is derived from ICOS

**3. Claims: 19 completely, 21-34 partially**

Polynucleotides encoding a chimeric receptor protein comprising an extracellular ligand-binding domain, a transmembrane domain and one cytoplasmic signalling sequences derived from CD134

**4. Claims: 20 completely, 21-34 partially**

Polynucleotides encoding a chimeric receptor protein comprising an extracellular ligand-binding domain, a transmembrane domain and one cytoplasmic signalling sequences derived from ICOS.

# INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/GB 03/04639

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
WO 9723613	A	03-07-1997	AU 729757 B2	08-02-2001
			AU 1201997 A	17-07-1997
			CA 2238873 A1	03-07-1997
			EP 0870019 A2	14-10-1998
			WO 9723613 A2	03-07-1997
			JP 2000502562 T	07-03-2000
			US 2003077249 A1	24-04-2003
WO 0233101	A	25-04-2002	AU 9406001 A	29-04-2002
			EP 1326987 A1	16-07-2003
			WO 0233101 A1	25-04-2002